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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/719,992	02/09/2001	Jesper Gluckstad	0459-0513P	5141

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EXAMINER

BOWES, SARA E

ART UNIT	PAPER NUMBER
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2136

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DATE MAILED: 03/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/719,992

Applicant(s)

GLUCKSTAD, JESPER

Examiner

Sara Bowes

Art Unit

2136

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-49 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) \_\_\_\_ is/are rejected.
- 7) ☒ Claim(s) 4-27, 31-49 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 1/25/01, 12/19/00
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_

## **DETAILED ACTION**

### ***Priority***

Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Denmark on 07/03/1998 and 03/15/1999. It is noted, however, that applicant has not filed a certified copy of the following applications: PA 1998 00869 and PA 1999 00364 as required by 35 U.S.C. 119(b).

### ***Claim Objections***

Claims 4-27 and 31-49 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend from any other multiple dependent claim. See MPEP § 608.01(n). Accordingly, the claims have not been further treated on the merits.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3 and 28-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Gluckstad.

Referring to claim 1, Gluckstad teaches a method of decryption of an encrypted image having a non-encrypted image intensity pattern  $I(x', y')$  and

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- Encoded into a mask having a plurality of mask resolution elements  $(x_m, y_m)$  with an encoded phase value  $\phi(x_m, y_m)$  and an encoded amplitude value  $a(x_m, y_m)$ , and
- Encrypted by addition of an encrypting phase value  $\phi_c(x_m, y_m)$  to the encoded phase values  $\phi(x_m, y_m)$  and by multiplication of an encrypting amplitude value  $a_c(x_m, y_m)$  with the encoded amplitude value  $a(x_m, y_m)$ ,
- Each mask resolution element  $(x_m, y_m)$  modulating the phase and the amplitude of electromagnetic radiation incident upon it with the complex value  $a(x_m, y_m)a_c(x_m, y_m)e^{i\phi(x_m, y_m)+i\phi_c(x_m, y_m)}$ , and

The method comprising the steps of

- Radiating electromagnetic radiation towards the mask [column 9, line 66-column 10, line 2],
- Inserting into the path of the electromagnetic radiation a complex spatial electromagnetic radiation modulator comprising modulator resolution elements  $(x_d, y_d)$ , each modulator resolution element  $(x_d, y_d)$  modulating the phase and the amplitude of electromagnetic radiation incident upon it with a predetermined complex value  $a_d(x_d, y_d)e^{i\phi_d(x_d, y_d)}$ , the decrypting phase value  $\phi_d(x_d, y_d)$  and the decrypting amplitude value  $a_d(x_d, y_d)$ , respectively, of a modulator resolution element  $(x_d, y_d)$  being substantially equal to  $-\phi_c(x_m, y_m)$  and  $a_c^{-1}(x_m, y_m)$ , respectively, of a corresponding mask resolution element  $(x_m, y_m)$  [column 6, lines 44-53], and

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- Imaging the mask and the electromagnetic radiation modulator onto the image having the image intensity pattern  $I(x', y')$  [column 4, lines 37-43].

Referring to claim 2, Gluckstad teaches a method according to claim 1, wherein the step of imaging comprises imaging with a common path interferometer [figure 1].

Referring to claim 3, Gluckstad teaches a method according to claim 1 or 2, wherein the step of imaging comprises phase contrast imaging [figure 1 and column 9, line 66].

Referring to claim 28, Gluckstad teaches a decryption system for decrypting an encrypted image having a non-encrypted image intensity pattern  $I(x', y')$  that has been

- Encoded into a mask having a plurality of mask resolution elements  $(x_m, y_m)$  with an encoded phase value  $\phi(x_m, y_m)$  and an encoded amplitude value  $a(x_m, y_m)$ , and
- Encrypted by addition of an encrypting phase value  $\phi_c(x_m, y_m)$  to the encoded phase values  $\phi(x_m, y_m)$  and by multiplication of an encrypting amplitude value  $a_c(x_m, y_m)$  with the encoded amplitude value  $a(x_m, y_m)$ ,
- Each mask resolution element  $(x_m, y_m)$  modulating the phase and the amplitude of electromagnetic radiation incident upon it with the complex value  $a(x_m, y_m)a_c(x_m, y_m)e^{i\phi(x_m, y_m)+i\phi_c(x_m, y_m)}$ ,

The system comprising

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- A source of electromagnetic radiation for emission of electromagnetic radiation for illumination of the mask [column 9, line 66-column 10, line 2],
- A complex spatial electromagnetic radiation modulator that is positioned in the path of the electromagnetic radiation and comprising modulator resolution elements  $(x_d, y_d)$ , each modulator resolution element  $(x_d, y_d)$  modulating the phase and the amplitude of electromagnetic radiation incident upon it with a predetermined complex value  $a_d(x_d, y_d)e^{i\phi_d(x_d, y_d)}$ , the decrypting phase value  $\phi_d(x_d, y_d)$  and the decrypting amplitude value  $a_d(x_d, y_d)$ , respectively, of a modulator resolution element  $(x_d, y_d)$  being substantially equal to  $-\phi_c(x_m, y_m)$  and  $a_c^{-1}(x_m, y_m)$ , respectively, of a corresponding mask resolution element  $(x_m, y_m)$  [column 6, lines 44-53], and
- An imaging system for imaging the mask and the electromagnetic radiation modulator onto the image having the image intensity pattern  $I(x', y')$  [column 4, lines 37-43].

Referring to claim 29, Gluckstad teaches a system according to claim 28, wherein the imaging system comprises a common path interferometer [figure 1].

Referring to claim 30, Gluckstad teaches a system according to claim 28 or 29, wherein the imaging system comprises a phase contrast imaging system [figure 1 and column 9, line 66].

**Conclusion**

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent No. 4,395,124 to Remijan;

U.S. Patent No. 5,903,648 to Javidi;

U.S. Patent No. 5,841,907 to Javidi et al.;


U.S. Patent No. 6,002,773 to Javidi;

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sara Bowes whose telephone number is 703-305-0326. The examiner can normally be reached on 7:30-4:00, Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ayaz R Sheikh can be reached on 703-305-9648. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

seb  
3/17/2004

  
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